

REMARKS/ARGUMENTS

Amendments to the Claims

Claim 59 has been amended to correct a typographical error.

Claims 59, 95, 102, and 103 have been amended to more clearly point out that “oxygenate” is a feature of the claimed feed vaporization and introduction (“FVI”) system. Oxygenate is not only a description of a type of feedstock that may be utilized by the claimed oxygenate FVI system, but is also a feature of the system itself. Support for these amendments can be found in paragraphs [0008] and [0019], *inter alia*, of the specification.

Claims 109 and 110 have been added. Claim 109 is directed to an oxygenate feed vaporization and introduction system wherein the inner nozzle surface is formed from a material that is less catalytically active to the formation of oxygenate decomposition byproducts than carbon steel. Exemplary support for claim 109 can be found in paragraphs [0016], [0030], and [0038], *inter alia*, of the specification. Claim 110 limits the material to a non-metallic material and lists a group of non-metallic materials from which at least a portion of the inner nozzle surface of Claim 109 may be formed. Exemplary support for claim 110 can be found in paragraph [0038], *inter alia*, of the specification.

Claims 59, 95, 102, 103, and 109-110 are currently pending in this application.

Rejection of Claim 59 Under 35 U.S.C. § 103(a)

Claim 59 has been rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 4,282,010 to Cherish, *et al.*, (“Cherish”) in view of Japanese Publication JP No. 59-219390 to Tomuro, *et al.*, (“Tomuro”) and U.S. Patent No. 5,491,280 to Brummond, *et al.*, (“Brummond”). Applicants respectfully traverse this rejection and request reconsideration of Claim 59.

The Examiner has relied on Tomuro in making the rejection of Claim 59. Tomuro is a Japanese language document with only the abstract being provided in English. Applicants wish to make clear whether the Examiner has relied on only the abstract or on the full text document in support of the rejection. *See* M.P.E.P. 706.02(II) (“The record must also be clear as to

whether the examiner is relying upon the abstract or the full text document to support a rejection.”). As the Examiner has only cited to the Abstract in their discussion of the rejection, Applicants assume that the Examiner has relied only on the Abstract and not any additional facts contained in the underlying document. To this effect any arguments by Applicants regarding Tomuro are based only on the information in the Abstract. *See* M.P.E.P. 706.02(II) (“When an abstract is used to support a rejection, the evidence relied upon is the facts contained in the abstract, not additional facts that may be contained in the underlying full text document.”). *See also Ex parte Gavin*, 62 USPQ2d 1680, 1683 (B.P.A.I. 2001) (“An abstract and the underlying document of which it is a summary are distinct documents. In a rejection, an abstract stands on its own - it does not incorporate by reference any disclosure of the underlying document. Abstracts are often not written by the author of the underlying document, and may be erroneous or misleading – in virtually all cases, they are incomplete.”). Thus, if the Examiner is relying on the underlying full-text document in making the rejection, Applicants request that the Examiner provide a translation of Tomuro to Applicants so that Applicants may more fully respond to the rejection. *See* M.P.E.P. 706.02(II) (“If a document is in a language other than English and the examiner seeks to rely on that document, a translation must be obtained so that the record is clear as to the precise facts the examiner is relying upon in support of the rejection.”)

Applicants respectfully submit that Claim 59 is nonobvious in light of the cited references, as not all of the claim limitations have been taught or suggested by the prior art. *See* M.P.E.P. 8th Ed. Rev. No. 5, § 2143.03 citing *In re Royka*, 490 F.2d 981 (CCPA 1974) (“To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.”). First, Applicants respectfully submit that the references submitted by the Examiner do not teach or suggest an oxygenate inlet comprising a heating device. Secondly, Applicants respectfully submit that the cited references do not disclose or suggest an *oxygenate* feed vaporization and introduction system. As, the cited references do not teach or suggest all elements of the claimed invention, Applicants respectfully submit that the claimed invention is nonobvious.

First, Applicants respectfully submit that the cited references do not disclose or suggest an oxygenate inlet which includes one or more heating devices for vaporizing the feedstock.

Applicants claim an oxygenate FVI system comprising an oxygenate inlet wherein the “inlet includes one or more heating devices for vaporizing the feedstock.” The Examiner has stated that the inlet in Cherish “must inherently comprise a heating device” for heating the Cherish feedstock. *See* Office Action p. 3. Applicants respectfully disagree and submit that a heating device is not *inherent* in Cherish. Cherish merely states that the “char fines or coal in a transport gas ... are injected into the reactor vessel ... at a temperature in the range of 500 °F.” *See* Cherish Column 3, Lines 39-45. Applicants submit that this statement merely indicates that the char fines or coal are at this temperature, not that the feedstock inlet itself contains a heating device. The mere presence of a gas stream at an elevated temperature does not mean that the nozzle or feedstock inlet must inherently comprise a heating device. In fact, it is not only possible, but common, for gas streams to be heated remotely from the inlet introducing them into a vessel. As Cherish does not disclose or suggest a heating device, it is improper to imply the presence of a heating device without the heating device being inherent in all possible circumstances. *See* M.P.E.P. 8th Ed. Rev. No. 5, § 2112(IV) quoting *In re Robertson*, 169 F.3d 743 (Fed. Cir. 1999) (“to establish inherency, the extrinsic evidence, ‘must make clear that the missing descriptive matter is *necessarily* present in the thing described in the reference’ ... ‘the mere fact that a certain thing may result from a given set of circumstances is not sufficient.’”) (emphasis added). Thus, the Examiner must provide a basis in fact and/or a technical reason to reasonably support the determination that the allegedly inherent characteristic *necessarily* flows from the teachings of the applied prior art. *See* M.P.E.P. 8th Ed. Rev. No. 5 § 2112 (IV) citing *Ex parte Levy*, 17 USPQ2d 1461 (Bd. Pat. App. & Inter. 1990). Applicants have not claimed an oxygenate inlet for receiving *heated* feedstock, but rather have claimed an oxygenate inlet which includes a *heating device*. As the feedstock disclosed in Cherish may be remotely heated, Applicants submit that an inlet which includes a heating device is not inherent in Cherish.

Alternatively, even if the Examiner finds a heating device to be inherent in Cherish due to this one statement where the char fines are at an elevated temperature, Applicants still submit that the claimed invention is nonobvious over Cherish. Cherish discloses three input mediums, the char fines in a transport gas, an oxidant, and a cooling/fluidizing medium, each of which are subject to separate flow controls. *See* Cherish Column 4, Lines 39-42. Each input medium

flows through a different tubes and annuli. *See* Cherish Column 3, Lines 39-43, 50-51, 54-55 (the char fines in a transport gas are in the inner tube, the oxidant is in the inner annulus, and the cooling/fluidization medium is in the outer annulus). Thus, the statement that the char fines and transport gas are at a temperature in the range of 500 °F, only indicates that a portion of the feedstock is at this elevated temperature. Cherish does not disclose or suggest that the remainder of the feedstock, primarily the oxidant, is also at an elevated temperature or is heated in the inlet to an elevated temperature. Applicants have claimed an oxygenate inlet which includes a heating device for vaporizing *the feedstock*, not a portion of the feedstock. As Cherish does not disclose or suggest an *oxygenate* inlet comprising a heating device for vaporizing the feedstock, nor does Cherish disclose or suggest why one skilled in the art would be motivated to modify Cherish to add a heating device to heat the entire feedstock, nor has the Examiner provided such a suggestion, Applicants respectfully submit that the claimed invention is nonobvious over Cherish.

Furthermore, none of the cited references disclose or suggest, nor has the Examiner provided a reason, why one who is skilled in the art would be motivated to modify the references to include a heating device in the feedstock inlet. In fact, Brummond teaches away from the inclusion of a heating device in the feedstock inlet. Brummond discloses an injector nozzle designed to cool the feedstock mixture below the decomposition temperature of the feedstock in order to prevent spontaneous detonation of the feedstock. *See*, Brummond Column 2, Lines 11-13. Thus, in Brummond if a heating device was included, this could lead to spontaneous detonation of the explosive feedstock, which is contrary to the cooling invention disclosed. As the inclusion of a heating device would render Brummond being modified in a manner unsatisfactory for its intended purpose, it cannot provide a suggestion or motivation to make such a modification. *See* M.P.E.P. 8th Ed. Rev. No. 5 § 2143.01(V) citing *In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984) (“If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification”); *see also* M.P.E.P. 8th Ed. Rev. No. 5, § 2141.02 (VI) citing *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983) (“a prior art reference must be considered in its entirety, *i.e.*, as a whole, including portions that would lead

away from the claimed invention”). Thus, Applicants submit that Brummond could not suggest the inclusion of a heating device, as it teaches away from such an inclusion.

Thus, as the cited references do not disclose or suggest an oxygenate inlet comprising a heating device, Applicants respectfully submit that not all of the claimed limitations have been taught or suggested by the prior art. Therefore, Applicants submit that the claimed invention is nonobvious over the prior art and request the rejection to Claim 59 be withdrawn.

Second, Applicants respectfully submit that the cited references do not disclose or suggest an *oxygenate* feed vaporization and introduction system. Cherish and Tomuro disclose systems for the combustion of dust coal and char fines in transport gases, e.g., oxygen. *See* Cherish Column 1, Lines 25-27; *see* Tomuro Abstract. Brummond discloses a system to safely dispose of energetic waste materials. *See* Brummond Column 1, Lines 65-67. Applicants respectfully submit that the claimed oxygenate system is patentably distinct from these disclosed systems.

The inclusion of “oxygenate” in the preamble of the claim indicates that oxygenate is a feature of Applicants' invention. Oxygenate names the feed vaporization and introduction system, and as such provides context for the system and breathes life into the claim. *See* M.P.E.P. 8th Ed. Rev. No. 5 § 2111.02 quoting *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298 (Fed. Cir. 1999) (“If the claim preamble, when read in the context of the entire claim, recites limitations of the claim, or if the claim preamble is ‘necessary to give life, meaning, and vitality’ to the claim, then the claim preamble should be construed as if in the balance of the claim.”). It is clear from Applicants' specification that “oxygenate” is an important characteristic of the claimed invention as it defines the “commercial alloy resistant to the formation of metal catalyzed side reaction byproducts.” Only by knowing the FVI system is an *oxygenate FVI system*, can one know which alloys will be resistant to the formation of metal catalyzed side reaction byproducts. Applicants respectfully submit that the dust coal and char fines of Cherish and Tomuro and the energetic waste materials of Brummond would not react to the alloys in the same manner as Applicants' oxygenate feedstock, and thus it is only by knowing that it is an *oxygenate FVI system* would one skilled in the art be able to choose the correct alloy which would be resistant to the formation of metal catalyzed side reaction byproducts. Thus, the term

“oxygenate” in the claim preamble is necessary to give meaning to the balance of the claim, and thus should be given patentable weight.

While the Examiner has stated that “expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim”, citing *Ex parte Thibault*, 164 U.S.P.Q. 666, 667 (Bd. App. 1969), Applicants contend that the term “oxygenate” is not merely an expression relating the contents of the apparatus to the apparatus itself, but is a statement which discloses a fundamental characteristic of the invention itself. That the system is an “oxygenate feed vaporization and introduction” system is a feature of the claimed invention that contributes to the patentability of the claim. *See e.g., Poly-America LP v. GSE Lining Tech. Inc.*, 383 F.3d 1303 (Fed. Cir. 2004) (“the preamble language relating to ‘blown-film’ does not state a purpose or an intended use of the invention, but rather discloses a fundamental characteristic of the claimed invention that is properly construed as a limitation of the claim”). As discussed above, only by knowing that the system is an *oxygenate FVI system* can one know which alloys to use in order to resist side-reaction byproducts.

Applicants' invention conveys a completely different kind of feedstock to a completely different kind of reactor under different feed conditions, than that disclosed by the references. Cherish and Tomuro disclose fluidized bed coal gasification processes, which have an arrangement for feeding particulate mediums (char fines and coal dust) in a transport gas into a reactor. Brummond discloses an injector nozzle to inject energetic waste materials (e.g., high explosives, propellants, rocket fuels) into a molten salt reactor. These disclosed systems are not analogous to the oxygenate feed vaporization and introduction system of the Applicants' invention. Any reaction of the *oxygen gas* disclosed in Cherish and Tomuro (and the oxygen in the energetic waste material of Brummond) with metal alloy nozzles necessarily creates different by-products than those from high temperature *oxygenated hydrocarbon* flow through metal alloy nozzles. Additionally, the cited references do not teach or suggest, nor do they provide any motivation to modify, the disclosed inventions in order to avoid side-reaction by-products, as side-reaction by-products are not disclosed problems in the reference fields. Thus, as the systems disclosed by the references would not lead one with ordinary skill in the art to know

which allows to chose to avoid side-reaction byproducts in an oxygenate FVI system, Applicants' claimed invention is nonobvious over the cited references.

In sum, as the cited references do not disclose an *oxygenate* FVI system, Applicants respectfully submit that not all of the claimed limitations have been taught or suggested by the prior. Therefore, Applicants submit that the claimed invention is nonobvious over the prior art and request the rejection to Claim 59 be withdrawn and that Claim 59 be found allowable.

Rejection of Claims 95, 102, and 103 under 35 U.S.C. § 103(a)

Claims 95, 102, and 103 have been rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 4,282,010 to Cherish, *et al.* (“Cherish”) in view of JP Publication No. 59-219390 to Tomuro, *et al.* (“Tomuro”) and U.S. Patent No. 5,491,280 to Brummond, *et al.* (“Brummond”), as applied to claim 59, and further in view of Roberge (Handbook of Corrosion Engineering). Applicants respectfully traverse this rejection and request reconsideration of Claims 95, 102, and 103.

As claims 95, 102, and 103 depend on claim 59, they should be found to be nonobvious if claim 59 is found to be nonobvious, as described above. *See* M.P.E.P. § 2143.03 citing *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988) (“If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.”). Roberge does not remedy the deficiencies of Cherish, Tomuro, and Brummond, as detailed hereinabove, with respect to claim 59, as currently presently. As a result, Applicants respectfully request that the rejection to claims 95, 102, and 103 be withdrawn and that the claims be found allowable.

New Claims 109 and 110

Claim 109 is directed toward an oxygenate feed vaporization and introduction system wherein the inner nozzle surface is formed from a material that is less catalytically active to the formation of oxygenate decomposition byproducts than carbon steel. Claim 110 further limits this material to a non-metallic material and provides a list of non-metallic materials from which the inner nozzle surface can be formed. Applicants respectfully submit that none of the cited references disclose or suggest an oxygenate feed vaporization and introduction system wherein at

least a portion of the inner nozzle surface is formed of a material that is less catalytically active to the formation of oxygenate decomposition byproducts than carbon steel. The limitation that at least a portion of the inner nozzle surface be formed of such a material comprises a positive, structural limitation on the scope of the claim that the Examiner has not shown to exist in any of the cited references. Moreover, none of the references cited by the Examiner disclose or suggest the use of a non-metallic material, as required by new claim 110. Thus, as not all of the claim limitations have been taught or suggested by the cited references, Applicants respectfully submit that new claims 109 and 110 are novel and non-obvious with respect to the cited prior art references. See M.P.E.P. 8th Ed. Rev. No. 5, § 2143.03 citing *In re Royka*, 490 F.2d 981 (CCPA 1974) (“To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.”). Therefore, Applicants respectfully request that claims 109 and 110 be found allowable.

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Amendment dated September 25, 2007
Reply to Office Action of July 24, 2007

CONCLUSION

Having demonstrated that the cited references fail to disclose or suggest the invention as claimed, and all other formal issues having now been fully addressed, this application is believed to be in condition for allowance. Accordingly, Applicants request early and favorable reconsideration in the form of a Notice of Allowance.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated, since this should expedite the prosecution of the application for all concerned.

If necessary to affect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to affect a timely response. Please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1712 (Docket #: 2002B124/2).

Respectfully submitted,

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/David M. Weisberg/
David M. Weisberg
Attorney for Applicants
Registration No. 57,636

Post Office Address (to which correspondence is to be sent):
ExxonMobil Chemical Company
Law Technology
P.O. Box 2149
Baytown, Texas 77522-2149
Telephone No. (281) 834-0599
Facsimile No. (281) 834-2495